Claims 12-16 have been amended to correct typographical errors. A reconsideration for allowance of claims 12-16 is respectfully requested of the Examiner.

Claim Rejections Under 35 USC §103

Claims 1-8, 10-11 and 13-21 are rejected under 35 USC §103(a) as being unpatentable over Yamakawa et al '960 in view of Morimasa et al '720. It is contended that Yamakawa et al discloses in Figs. 1-14 a gaseous flow sensor including an insulating substrate, reference resistors and flow-sensing resistors formed of a non-platinum resistive material.

The rejection of claims 1-8, 10-11 and 13-21 under 35 USC §103(a) based on Yamakawa et al and Morimasa et al is respectfully traversed.

Independent claims 1 and 10 have been amended to more narrowly define the reference resistor and the flow-sensing resistor as being formed of "a resistive material of an oxide".

The Applicants respectfully submit that such is not taught, disclosed or suggested by Yamakawa et al nor Morimasa et al, either singularly or in combination thereof.

Independent method claim 17 further recites the steps of:

> "thick film printing a reference resistor from an oxide containing paste;
>
> thick film printing a flow-sensing resistor from an oxide containing paste."

The Applicants further submit that such processing steps are not taught, disclosed or suggested by Yamakawa et al nor Morimasa et al, either singularly or in combination thereof.

Yamakawa et al discloses a method for forming heat generating resistors and temperature compensating resistors by thin film sputtering of platinum (or the like) to a thickness of 0.2 μm.

Morimasa et al discloses a method for forming (Figs. 8A-8C, col. 3, line 60 through col. 4, line 50) by sputtering a metal thin film of aluminum resistance heaters and resistance sensors.

The Applicants therefore respectfully submit that neither Yamakawa et al nor Morimasa et al, either singularly or in combination thereof, teaches the formation of reference resistors and flow-sensing resistors by a resistive material of an oxide, as clearly recited in the present invention independent claims 1, 10 and 17.

The present invention independent claim 11 further recites:

"a first resistor formed on said insulating substrate having a first resistance, said first resistor being maintained at ambient temperature;

a second resistor formed on said insulating substrate having a second resistance, said second resistor being maintained at a temperature higher than said ambient temperature, said first resistance being at least 15 times the value of said second resistance ..."

The Applicants respectfully submit that such is not taught, disclosed or suggested by Yamakawa et al nor Morimasa et al, either singularly or in combination thereof.

The Applicants still further submit that the present invention sensor apparatus and the method for sensing requires the reference resistor being kept at an ambient temperature, see claims 1, 10, 11 and 17, which is clearly not taught, disclosed or even suggested by Yamakawa et al and Morimasa et al. While Morimasa et al does not teach a reference resistor at all, Yamakawa et al does not teach the reference resistors 6A and 6B must be kept at ambient temperature and that the flow sensing resistors 4 and 5 must be kept at a temperature higher than the ambient temperature.

The rejection of claims 1-8, 10-11 and 13-21 under 35 USC §103(a) based on Yamakawa et al and Morimasa et al is respectfully traversed. A reconsideration for allowance of these claims is respectfully requested of the Examiner.

Claim 12 is rejected under 35 USC §103(a) as being unpatentable over Yamakawa et al, Morimasa et al and further in view of Wienand et al '265. It is contended that while Yamakawa et al and Morimasa et al do not explicitly disclose an insulating substrate formed of a ceramic material, such is disclosed by Wienand et al.

The rejection of claim 12 under 35 USC §103(a) based on Yamakawa et al, Morimasa et al and Wienand et al is respectfully traversed.

Claim 12 depends on independent claim 10 which clearly recites:

> "a reference resistor formed on said substrate ... at an ambient temperature ...;
>
> a flow-sensing resistor formed on said substrate ... heated to a temperature higher than said ambient temperature, wherein said reference resistor and said flow-sensing resistor both are formed of a resistive material of an oxide ..."

The Applicants have shown that such elements of independent claim 10 are not taught or disclosed by the primary references of Yamakawa et al and Morimasa et al. The Applicants further submit that the additional reference of Wienand et al does not contain any of such teaching and therefore does not lend any additional weight in a §103 rejection.

The rejection of claim 12 under 35 USC §103(a) based on Yamakawa et al, Morimasa et al and Wienand et al is respectfully traversed. A reconsideration for allowance of claim 12 is respectfully requested of the Examiner.

Based on the foregoing, the Applicants respectfully submit that all of the pending claims, i.e. claims 1-8 and 10-21, are now in condition for allowance. Such favorable action by the Examiner at an early date is respectfully solicited.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "Version With Markings To Show Changes Made".

In the event that the present invention is not in a condition for allowance for any other reasons, the Examiner is respectfully invited to call the Applicants' representative at his Bloomfield Hills, Michigan office at (248) 540-4040 such that necessary action may be taken to place the application in a condition for allowance.

Respectfully submitted,
Tung & Associates

Randy W. Tung
Reg. No. 31,311
Telephone: (248) 540-4040

RWT\kd

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In The Claims

Claim 1 has been amended as follows:

1. (Twice Amended) A gaseous flow sensor comprising:

a substrate formed of an electrically insulating material;

a reference resistor formed on said substrate and disposed in a gaseous flow at an ambient temperature without heating;

a flow-sensing resistor formed on said substrate and disposed in said gaseous flow heated to a temperature higher than said ambient temperature, wherein said reference resistor and said flow-sensing resistor are formed of a [non-platinum] resistive material of an oxide; and

an electrical circuit in electrical communication with said reference resistor and said flow-sensing resistor.

Claim 2 has been amended as follows:

2. (Amended) A gaseous flow sensor according to claim 1, wherein said [non-platinum] resistive material comprises an oxide composition of Pb, Ru, Si and Bi.

Claim 10 has been amended as follows:

10. (Twice Amended) A gaseous flow sensor comprising:

a substrate formed of an electrically insulating material;

a reference resistor formed on said substrate and disposed in a gaseous flow at an ambient temperature without heating;

a flow-sensing resistor formed on said substrate and disposed in said gaseous flow heated to a temperature higher than said ambient temperature, wherein said reference resistor and said flow-sensing resistor both are formed of a [single non-platinum] resistive material <u>of an oxide</u>; and

an electrical circuit in electrical communication with said reference resistor and said flow-sensing resistor.

Claim 12 has been amended as follows:

12. (Amended) An airflow meter according to claim 10, wherein said [insulating] substrate is formed of a ceramic material.

Claim 13 has been amended as follows:

13. (Amended) An airflow meter according to claim [10] 11, wherein said first resistor is formed in a serpentine configuration.

Claim 14 has been amended as follows:

14. (Amended) An airflow meter according to claim [10] 11, wherein said first resistor being formed in a serpentine configuration having an aspect ratio (length/width of resistor) of at least 2.

Claim 15 has been amended as follows:

15. (Amended) An airflow meter according to claim [10] 11, wherein said first and second resistors are formed with a thickness between about 2 μm and about 30 μm.

Claim 16 has been amended as follows:

16. (Amended) An airflow meter according to claim {10} 11, wherein said first and second resistors are formed of a [non-platinum containing] resistive material of an oxide.

Claim 17 has been amended as follows:

17. (Amended) A method for fabricating a gaseous flow sensor comprising the steps of:

thick film printing a reference resistor from [a non-platinum] an oxide containing paste;

thick film printing a flow-sensing resistor from [a non-platinum] an oxide containing paste;

forming a circuit for providing electrical communication between said reference resistor and said flow-sensing resistor and for determining a differential resistance therein between.